

Chapter – 1

Introduction

1. Background

On September 10, 1999, approximately 76,000 acres of forested land on the Delmarva Peninsula was sold by Chesapeake Forest Products Corporation to an innovative partnership between The Conservation Fund, the Richard King Mellon Foundation, and the State of Maryland. In addition, both Hancock Timber Resources Group and the Chesapeake Bay Foundation played significant roles in developing and supporting the acquisition by their partnership. Of the 58,000 acres purchased in Maryland approximately half of the land was acquired by the Maryland Department of Natural Resources. The Conservation Fund (TCF) purchased the remaining half of the land on behalf of the Richard King Mellon Foundation with the intent to gift this portion of the property to the State Of Maryland by December of 2000. The division of tracts between the State and the TCF was based on a Department of Natural Resources (DNR) review that resulted in state ownership of the most environmentally sensitive tracts as well as those adjoining existing DNR properties. The balance of the Chesapeake property (18,000 acres in Delaware and Virginia) was acquired by Sustainable Conservation Inc, a non-profit subsidiary of TCF, and is outside the scope of this plan.

Table 1. Summary by county of Chesapeake Forest Lands in Maryland

	TCF-Mellon – Gifted Portion	MD-DNR - Purchased	TOTAL*
County	<i>Acres</i>		
Caroline	302	952	1,254
Dorchester**	1,657	9,564	11,221
Somerset	12,790	4,491	17,281
Wicomico	9,834	5,888	15,722
Worcester	5,352	7,617	12,969
TOTALS*	29,935	28,507	58,447

*Note: totals may not add due to rounding

** Acreage reflects a residual tract purchased after the initial land transactions.

The goal of this transaction was and continues to be to retain the property as a working forest that will be managed in a conservation-minded way to provide forest products, local employment, and recreation opportunities while protecting or improving the water quality and habitat value of the lower Chesapeake Bay watershed.

To help meet these goals, The Conservation Fund contracted with the Sampson Group, Inc., under the direction of Neil Sampson, to develop a forest management plan on their 29,935 acre portion. This plan would guide the management of that portion of the forest from when it was donated to the State in December 2000 through a three year transition period that ended

December 31, 2003. The developed management plan also served as a guide for the management of the DNR half of the property during this transition time period.

2. Planning Process

The original forest management plan that was developed for The Conservation Fund was developed by a Planning Team assembled by The Sampson Group, Inc., under the direction of Neil Sampson, Planning Coordinator. Guidance and planning decisions were provided by a Steering Committee under the leadership of David Sutherland of The Conservation Fund, and included participation by representatives of the Chesapeake Bay Foundation, Maryland Department of Natural Resources, and the Smurfit-Stone Forest Products Corporation. That original Steering Committee and Planning Team along with a Scientific Review Team reviewed and provided input on the original TCF plan, members are listed in Appendix A.

This new sustainable forest management plan has gone through the Department's land planning process that has taken almost two years to complete. As part of that process, the Sustainable plan was reviewed by the Chesapeake Forest Advisory Committee, which was a group consisting of various resource professionals, private citizens, industry representatives and local political leaders (See Appendix B). This Committee review was conducted at monthly meetings that were open to the public. (Note: Minutes from those meetings can be found on the Chesapeake Forest website). Based on the input provided by this committee along with updated resource information provided by DNR resource professionals, several sections of the original plan were revised and a few new chapters were added and several were deleted. Following the completion of this draft document, additional input was received at a public meeting and during a 30 day comment period. This new plan is the result of this review by the Committee and the public and is based on the original plan developed by the Sampson Group.

3. Goals for Chesapeake Forest Lands

The primary goal of Chesapeake Forest Lands is to demonstrate that an environmentally sound, sustainably managed forest can contribute to local and regional economies. The State of Maryland and The Conservation Fund have publicly committed that these forests will continue their part in a viable forest-based economy on the Eastern Shore.

This goal will be pursued subject to the following constraints:

A. That the quality of the water flowing through the properties will not be impaired due to any actions on the land, and in many cases will be improved. Where feasible, wetlands, riparian areas, and ditches will be the site of watershed improvement practices specifically aimed at improving the quality of water entering the Chesapeake Bay.

B. That management policies and actions are consistent with state and federal requirements for protecting and managing rare, threatened and endangered species of plants and animals. The Department will identify locations of rare, threatened and endangered species habitat and forest conditions associated with the habitat requirements of these species. Management actions will consider opportunities to enhance existing habitats and provide for corridors. Abundance and distribution goals for common species will be periodically updated through DNR based resource assessments. Habitat goals for common species will be reflected in forest management activities.

C. That forest harvest levels comply with targets established by a long-term sustainable harvest plan. To the extent possible, harvest and thinning activity levels will produce reasonably uniform flows of products and contractor activities year-to-year. Short-term deviations due to natural disturbances, operational logistics, or unusual events are anticipated, but exceptions for an extended period will require re-evaluation of the sustainable harvest level. Spatial and timing constraints will prevent thinning or harvesting operations from concentrating impacts in any watershed or visual scene in violation of water quality goals, habitat diversity and connectivity goals, or the green-up requirements imposed by the Sustainable Forestry Initiative (SFI) Standard (See Appendix C). The plan will be re-evaluated periodically and updated according to changes in circumstances.

D. That the Department makes use of the best available data to determine what activity levels are consistent with the sustainability of the forest ecosystems so that harvests will not decrease the ability of the forests to continue that average level of yield. Ecosystem sustainability means, in addition to the factors listed in (A) and (B), no net loss in soil fertility and no loss of non-target species due to on-site forestry practices. Past and present data are limited, so future harvests will be based on adaptive response to appropriate monitoring, forecasting, and revision.

E. That forest recreational opportunities will be provided as appropriate, and are consistent with the above goals for each site. Public use of the forest will be achieved through a combination of revenue-generating hunting leases and public access recreation. The Department will determine the appropriate level of public use for each tract as part of its ongoing evaluation and monitoring process.

4. Primary constraints to be addressed in the Plan

Contributing to local economies at levels consistent with the past history will be impossible for a decade or so, due to the young age of the pine plantations, the lack of merchantable timber on the mixed stands, and the need to maintain the existing large trees on streamside management zones and special management areas.

Loblolly pine, the dominant commercial species in the area, requires adequate light for regeneration and therefore needs sufficiently large openings. Small clear cuts, while visually more acceptable than large ones, create habitat fragmentation, and so are not recommended by many wildlife scientists, who suggest that openings of 50 to 100 acres in size are more in keeping with the natural disturbance regimes needed by many species. However, clearcut harvest sizes in excess of 40 acres are in conflict with the Forest Stewardship Council (FSC) certification standards, which the Department has committed to follow (See Appendix E). Any deviation in excess of a 40 acres harvest size must be based on forest health, economic and ecological necessity and be approved by FSC.

Other pine plantation management practices such as bedding, chemical hardwood suppression, and fertilization may be inconsistent with watershed and wildlife habitat enhancement goals, creating difficult tradeoff choices. Different management options are available in some situations, but many management methods exist today because little else worked in the past to regenerate the forest. In the final decision, maintaining sustainable forest health may depend on doing what works best for the species and sites involved.

The timely creation of mature forests featuring large trees with some mature hardwood

component and open under-story for Delmarva fox squirrel habitat depends on aggressive use of practices like thinning and prescribed fire, and the prudent use of fertilizers and herbicides. Whether the use of prescribed fire is feasible at the desired scale may be an issue, in light of local objections to fire, smoke and the number of acceptable burning days that meet burn plan requirements.

The implementation of ecosystem management that addresses landscape-level issues over a variety of unit sizes may present several problems. For example, restoration of habitat for species that need large areas of diverse conditions is feasible on some of the larger Chesapeake Forest Land management units, but may not be feasible on many of the smaller units. However many of the best water quality improvement projects are located on small or medium sized units because of their connectivity to other lands such as farms.

5. Major Planning Issues

The vision for Chesapeake Forests Lands is one that demonstrates a wide variety of management conditions and approaches that will result in sustainable forestry. Public interaction and interest will likely continue to be intense, all the way from the occasional roadside and/or streamside viewers and visitors to hunters, logging contractors, local business, industry, and government leaders. Expectations will be diverse, often conflicting, and changing. Forest industry skepticism exists about the ability of the Department to maintain timber outputs from this forest. The gap in timber outputs caused by the age class distribution of the forest and the Department's adherence to the management of endangered species habitat may be misread by forest industry as not being able to meet economic goals on the forest.

The plan and its subsequent implementation, are therefore challenged to:

- Be consistent with the physical facts, biological potentials, economic constraints, and environmental conditions affecting these forests;
- Contribute to a set of public expectations that are reasonable in light of the situation at hand;
- Be open and transparent about what is most likely to result from various management options, what tradeoffs exist, and, in retrospect, what actually results from activities.

Meeting these challenges involves:

- Developing and maintaining the best resource assessment possible under the limits of time and funds;
- Assembling and updating a broad, interdisciplinary base of scientific knowledge and theory to support management decisions;
- Creating an integrated system of field data gathering, monitoring, information feedback, and data analysis that can learn from research and field experience to support constant improvement in resource assessment, scientific understanding, and management technique;
- Creating an adaptive management process that enables managers to flexibly respond to surprises and unforeseen disturbances, including a significant degree of flexibility for future plan amendments or adjustments;
- Involving third-party certification as part of the regular management regime, so that the environmental performance of field activities is evaluated regularly and management adjustments made as necessary; and,
- Creating a well defined decision making process, and a clear line of authority and responsibility for management of the forests.

6. Achieving The Vision

The Vision for Chesapeake Forest Lands is that it will become an active, working model of certified sustainable forestry on the Eastern Shore that:

- Support abundant and diverse plant and animal life including both endangered and common species,
- Contribute to improved water quality,
- Support natural resource based economic benefits,
- Provide diverse opportunities for recreation.

The goals above translate into a vision for what the Chesapeake Forest Lands may become under this plan, and the management that results from it.

In the broad sense, the vision for the Eastern Shore is a future that has retained or enlarged the area supporting sustainable forests with abundant wildlife and biological diversity, sustained employment in timber-related industries, contributed to recovery of threatened and endangered species such as the Delmarva Fox Squirrel, improved water quality in the Chesapeake Bay, and provided high-quality recreational opportunities for people. The vision also includes the belief that Chesapeake Forest Lands will pay for itself and help support local jurisdictions.

The reality is that the 58,000 acres of Chesapeake Forest Lands is a small but in some ways crucial percentage of the total area of the Eastern Shore. Therefore this plan is presented in terms of what could be done to help achieve that broad regional vision in cooperation with other landowners, businesses, and local jurisdictions.

7. Challenges To Modern Forest Management

One of the most challenging aspects of modern forest management is the need to balance environmental, social, and economic goals to achieve the vision of a truly sustainable future. This plan addresses that need with guidelines based upon the character of the land itself. For general planning purposes, the plan brings together the known situation of the forest vegetation and wildlife with the available information on the soil and water resources. This has allowed identification of key areas for water quality, wildlife habitat, and other values. At the same time it also identified those areas where the production of economic timber harvests under modern management is both most economically rewarding and environmentally sound. In addition to those general guidelines, the plan calls for intensive and ongoing fieldwork to identify and manage specific areas. Some of these areas such as wetlands, Delmarva Bays, bald eagle nests, and historic cemeteries are too small to be located on large scale maps, but they still must be managed where they exist. The Forest Managers are tasked with precisely locating these special areas with GPS equipment, and when they are found in the field their extent will be mapped and their management will reflect the special values that they possess.

With appropriate care of those key environmental values, this land can produce both timber for local industry and jobs for local workers, as well as opportunities for public recreation and enjoyment. This is envisioned to occur in a variety of ways, again guided primarily by the character of the land and forests themselves.

To help guide general decision making, the original TCF plan utilized a modern forest management model (HABPLAN) that allows different options to be compared in a wide variety of ways, including costs and economic returns, production of wildlife habitat values, and the types of forest structures and diversity that will result.

One of the questions that may arise is “why the emphasis on thinning the young loblolly pine stands?” The answer emerges from Figure 1, which is produced by TAUYIELD, a growth model for loblolly pine in this region. Where the goal is to grow larger trees and hold them on the land longer, thinning makes an enormous difference. In this example, thinning produces ten 14-inch trees per acre at age 30 instead of age 39, and 20 large trees per acre at age 33 instead of age 45. The differences in both habitat and timber value are significant. Fast-growing trees stay healthier, utilize airborne nutrients more effectively, and resist insect infestations better. While it is possible to debate the merits of various approaches to forest management, such as the potential impact of harvesting on a 35-year rotation or a 50-year rotation, or the relative impacts of clear cutting versus selective harvest, the facts are that few of those decisions will take effect for many years.

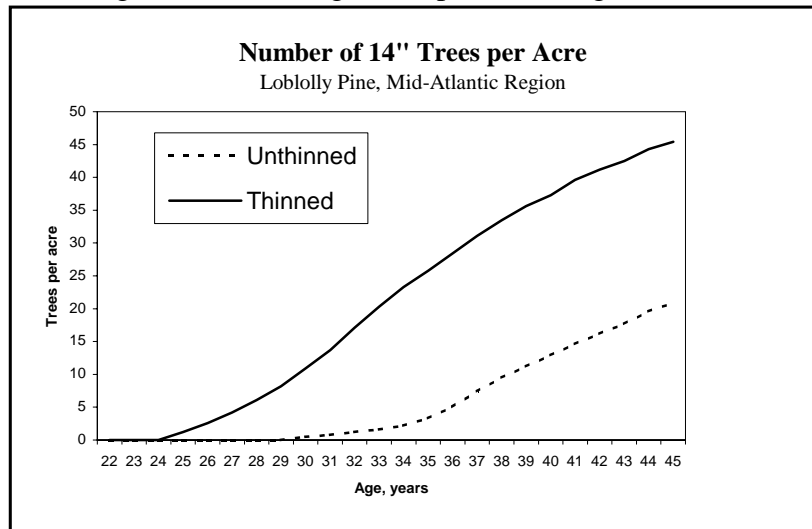


Figure 1. Estimated growth of loblolly pine plantation, thinned versus un-thinned.

The most important thing is to retain the focus on desired outcomes and results. This will require skilled field personnel to evaluate each site and situation and select the specific action required to work toward the desired result. Seldom will prescriptive, one-size-fits-all rules be effective in achieving the vision, and often they can do more harm than good, so we have tried to avoid them where possible.

The most important decisions right now are ones of process, setting up a system that can work to meet the goals for the forest. That approach leaves the necessary room for future managers to adjust to what is learned and to react to surprises such as hurricanes, insect outbreaks, or dramatic market changes. That means that, in the eyes of some critics, the plan may lack a desired level of precision and certainty. Our best response to such critics is that this plan is a dynamic one; describing how land managers will adjust to a living, changing, and, in many ways, unpredictable system. It is not a design to be painted on the land; it is a challenge to this and future generations of Marylanders for continued, responsible, sustainable stewardship of the land and water.

8. Adaptive Management

One of the key concepts in this plan is that of Adaptive Management – land management that relies on good information, testing, feedback, and response to change or new learning. This plan envisions an adaptive system with feedback, learning, and the flexibility to respond to surprises.

Adaptive management involves learning from one’s experiences, including both successes and mistakes. The learning and adapting process must take place in real time, responding to changes in situation that can, sometimes, be unforeseen yet serious. This requires accurate data to identify baseline conditions and sound scientific theory to predict how these systems will respond to different disturbances or management actions. The fact is, there is never enough data or unquestioned scientific theory to answer every possible question, so an action plan must use

the best available. The associated assumption is that continuing efforts to monitor and collect data, refine assumptions, improve models, and learn from the land itself are essential to the implementation of this process and to achieving the vision. This is viewed as an ambitious and experimental effort, one that will challenge the Department and the Chesapeake Forest Management staff in many ways, and will also no doubt involve mistakes and future adjustments.

9. What Will and Won't Change?

This plan is designed to ease a transition between the former industrial forest management and the future multiple-purpose management under State ownership. Some of the changes between the former forests and the future forests will be fairly subtle, and many will take decades to emerge. So if it appears that the forests are not changing significantly in the near future, that may be the case.

The changes however, will become important over time, and they include:

- Maintenance or enhancement of water quality
- Protection of natural resources, including biological diversity
- Contribution to the local resource-based economy
- Providing opportunities for appropriate low-impact, resource-based public use
- Widening of Riparian Forest and Wetland Buffers to protect and enhance water quality, as well as provide mature forest habitat for species that need such conditions;
- More mixed hardwoods and hardwood/pine forests associated with the buffers, in which timber harvesting maintains a mature forest stand after it is achieved;
- Longer pine plantation rotations, particularly in areas where wildlife habitat relies on large pine trees. These will be harvested, but at older, larger sizes, which has implications for the future timber industry on the Shore.
- Less intensive methods of forest regeneration, including the use of natural pine regeneration whenever and wherever it can succeed. This has been shown to result in somewhat slower tree growth for the first 2-4 years compared to the more intensive methods of soil preparation and planted seedlings, but those early differences disappear later in the rotation. As a result, when forests are being managed for longer rotations, the less intensive regeneration methods should not result in a loss of productivity. They do, however, reduce up-front costs significantly as well as produce less soil and site disturbance.

Some things won't change, and other changes will take years to emerge, and may be almost imperceptible for a long time. Those include:

- The planned shift to longer rotations for additional sawlogs will emerge slowly, as today's young stands reach larger sizes. The emphasis on thinning will produce significant amounts of pulpwood and forest-based jobs.
- The Department is committed to maintaining former levels of financial contribution to the counties so that property tax revenues are not affected. This plan will uphold that commitment.
- The development of riparian forest buffers in areas now planted to young pine plantations will take time. These areas must grow into buffers, so for the near future, there may be more pine pulpwood produced from buffer zones than from outside them, as additional pines are removed to create openings for hardwoods.

- Measurable improvements in stream water quality may come slowly. Much of the water flowing across these forests comes from agricultural and developed areas. Efforts will be made to create areas that can trap nutrients, but the measured progress is likely to be slow to emerge.
- Major impacts on the wildlife habitat depending on large trees will not occur until today's young forests have time to grow. Improved Delmarva fox squirrel habitat will emerge rapidly after about 20 years, but not before.
- Changing recreational patterns will require time for the Department to assess all the tracts, assure public safety and landowner relationships. Some of this assessment has already occurred and Public Use of several tracts has been implemented.

10. But is it Sustainable?

Achieving sustainable forestry or any of the host of "sustainable" objectives is a matter of predicting the future. That is an exercise in which forest managers, planners and others have had great difficulty in doing. So, if we can't predict accurately, how do we assess the probable sustainability of a plan for Chesapeake Forest Lands?

First, we recognize that there is never just one way to manage a forest toward a particular vision. There are often many alternative management options for which rational arguments are made. The task in developing this plan has been to select management options that seem to offer the best balance of opportunities, within the constraints and conditions that exist on the land. Those options are presented with some humility, because nobody knows everything we need to know on how to manage these lands sustainably, and because lands with forests, waters, and wildlife are complex systems, full of surprises. Perhaps the only thing one can be absolutely sure of with forested landscapes is that the unexpected is to be expected. While this may not guarantee sustainability, it provides the best set of indicators we currently know.

What is believed that can be done with scientific integrity is to identify and monitor some indicators of unsustainability. Ecological deterioration and damage can be avoided in this way.

The elements that should be monitored and the impacts avoided include:

- **Soil Deterioration.** Soil erosion, compaction, and rutting should be minimized, and, where possible, avoided. Soil nutrient and organic matter levels, as shown by soil tests, should not decline.
- **Rare Species.** Forest management activities should not cause the loss or serious decline of any threatened, rare, or endangered species. Where rare or sensitive ecological niches are identified, they should be managed to protect their components and processes.
- **Nutrient Pollution.** Monitoring should document that there is no significant increase in nutrient transport to adjacent waters due to forest management activities.
- **Economic Output.** To the extent feasible within existing forest and market conditions, and in keeping with protecting environmental assets and processes, there should be no significant diminution or excessive annual fluctuations in the flow of jobs created, products sold, and revenues realized from these forests.
- **Special Areas Protected.** No area identified as an Ecologically Significant Area, Natural Heritage Area, or other similar distinction, should be damaged or lost due to forest management activities.
- **Community Acceptability.** People should understand and accept the results they see on Chesapeake Forest Lands. Obviously, not everyone will be satisfied all the time. Evidence

of significant community dissatisfaction should, however, be dealt with pro-actively to seek management changes that result in community acceptance.

